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## Two New Species of the Genus *Lygephila* BILLBERG from Taiwan (Lepidoptera, Noctuidae)

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**Abstract** Two new species, *Lygephila kishidai* and *Lygephila yoshimotoi* are described from Taiwan. These two species can be easily distinguished externally by the reniform stigma and in genitalia by the structures of harpe, tegumen and trastilla, and of the posterior margin of copulatory cavity.

### *Lygephila kishidai* sp. nov.

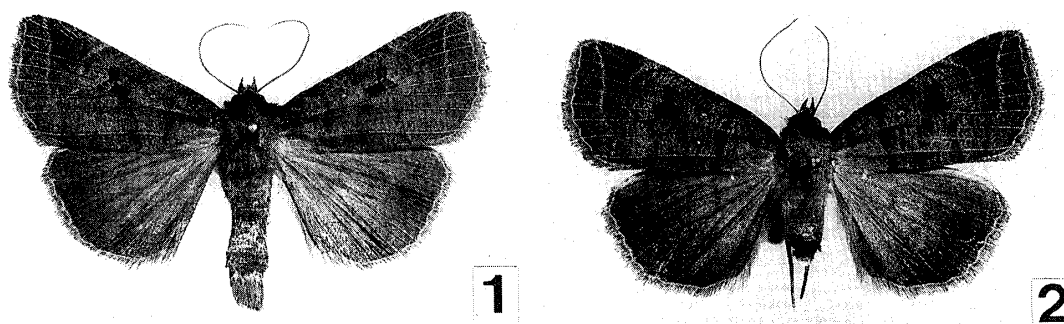
(Figs. 1–2, 3–8, 9, 18)

Palpi greyish brown, underside paler especially on the second segment. Frons greyish brown. Vertex blackish brown. Frons separated by thready white line from vertex. Antenna lustrous brown, filiform. Patagium blackish brown. Tegula greyish brown, spotted sparsely with dark brown. Thorax greyish brown. Legs greyish brown with blackish tint. Abdomen lustrous greyish brown, underside paler.

Wing. Upperside: Forewing greyish brown, costal area somewhat darker. Inner line eminently dark brown. Central line slightly dark brown. Outer line ochreous white from costa to  $M_1$ , inward vaguely hemmed with blackish brown until inner margin. Orbicular stigma quite indistinct. Reniform stigma greyish brown with reddish tint exteriorly to discocellular bar; brownish black interiorly rhomboid or bullet-shaped eminently expanding at its lower portion. Veins dirty yellow. Marginal line dirty yellow. Cilia greyish brown.

Hindwing greyish brown, slightly paler than forewing. Discal spot slightly darker, and obscure. Terminal shade greyish brown with blackish tint. Outer line indistinct. Cilia as in forewing, but slightly paler.

Underside: Forewing lustrous greyish brown with ochreous tint. Discocellular



Figs. 1–2. *Lygephila kishidai* sp. nov. 1. Holotype ♂; 2. Paratype ♀.

marking a vague blackish spot. Hindwing coloured as in forewing, but paler towards base. Outer line dark greyish brown. Discal spot blackish brown.

Length of forewing: 18 mm.

Male genitalia (Figs. 3–8). Uncus in lateral aspect sickle-shaped. Tegumen asymmetric, as far as the author examined, i. e. left side broader and longer than right side. Harpe thorn-like, apically pointed, adjacent to apex of valva, which bears an additional process on saccular lobe at near middle. The left process always slightly longer. Vesica of aedeagus clothed with finely scabinated areas. Manica delicately thorned. Paired ribbon-like sclerite on juxta and transtilla as in Figs. 6–7.

Female genitalia (Figs. 9). Copulatory cavity of flat funnel form, tapering towards its anterior portion and moderately sclerotized. Its posterior margin moderately bilobate.

Holotype: ♂, Lushan Spa (alt. 1200m.), Nantou Hsien, Taiwan, 29–30. III. 1982 (leg. H. YOSHIMOTO). Deposited in the collection of the Osaka Museum of Natural History, Osaka.

Paratypes: 13♂♂, 6♀♀ in total number. 2♀♀, Tayuling (2600m), Hualien Hsien, Taiwan, 28–31. III. 1981 (H. YOSHIMOTO); 1♂, same locality, 2–4. V. 1984 (H. YOSHIMOTO) (in Coll. of Osaka Museum of Natural History); 1♂, Alisan, Chiai Hsien, Formosa, 12. VIII. 1974 (leg. Y. KISHIDA); 1♀, same locality, 9. VIII. 1974 (leg. Y. KISHIDA); 1♂, Lishan, Taichung Hsien, Formosa, 9. VIII. 1974 (Y. KISHIDA) (in Coll. of KISHIDA).

2♂♂, Tayuling (2600m) Hualien Hsien, Taiwan, 28–31. III. 1981 (H. YOSHIMOTO); 1♂, Chun Yang (1100m) Nantou Hsien, Taiwan, 25–26. III. 1981 (H. YOSHIMOTO); 1♂, Lushan Spa (1200m), Nantou Hsien, Taiwan, 24–27. VIII. 1983 (H. YOSHIMOTO), (in Coll. of YOSHIMOTO).

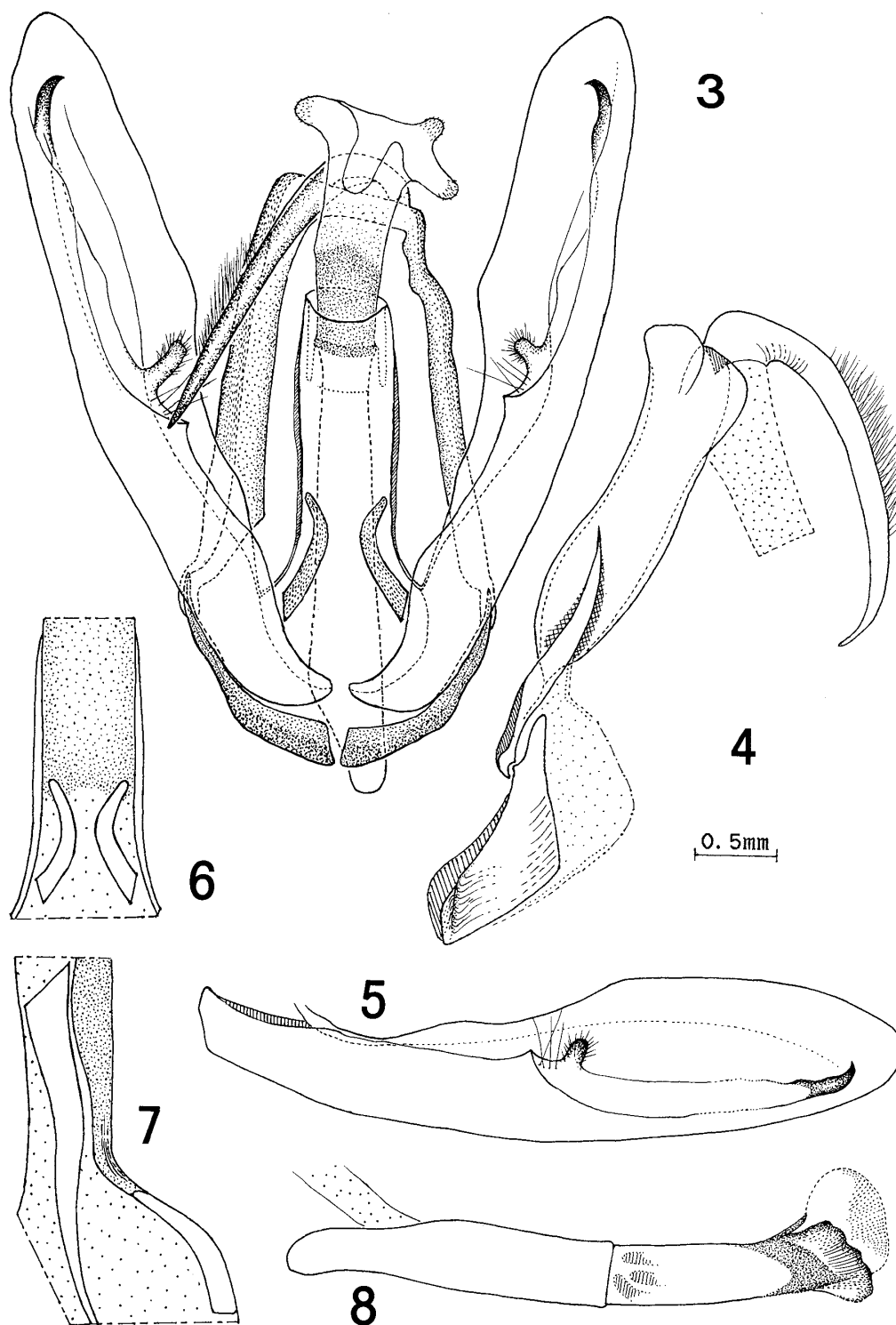
2♂♂ 2♀♀, Tayuling (2600m), Hualien Hsien, Taiwan, 28–31. III. 1981 (H. YOSHIMOTO), (in Coll. of G. BEHOUNEK).

1♂, Alishan, Chiai Hsien, Taiwan, 20. VI. 1970 (Y. KISHIDA); 1♂, Chun Yang (1100m), Nantou Hsien, Taiwan, 25–26. III. 1981 (leg. H. YOSHIMOTO); 1♂, Lushan Spa (1200m), Nantou Hsien, Taiwan, 29–30. III. 1982 (H. YOSHIMOTO); 1♂, Chitou (1100m), Nantou Hsien, Taiwan, 25. III. 1982 (H. YOSHIMOTO); 1♀, same locality, 2–4. V. 1984 (H. YOSHIMOTO) (in Coll. of KINOSHITA).

Immature stages and food plant: Unknown.

Geographical distribution: Known at present time only from mountainous districts of Taiwan.

Remarks: This new species is similar to *L. ogatai* KINOSHITA & SASAKI. (*Toxocampa lilacina* BUTLER, 1878, is advocated as the senior synonym of the same species. KISHIDA & YOSHIMOTO, 1988) It is separable by the asymmetric tegumen, sickle-shaped uncus, and the process of the middle portion of saccullus: on the other hand *L. ogatai* has symmetric tegumen, semicircular uncus and the lack of process as mentioned above.



Figs. 3–8. Male genitalia of *Lygephila kishidai* sp. nov. 3. Whole genitalia (posterior aspect); 4. Uncus, tegumen and vinculum (lateral aspect); 5. Right valva; 6. Juxta and transtilla (ventral aspect); 7. *Ditto* (lateral aspect); 8. Aedeagus (lateral aspect).

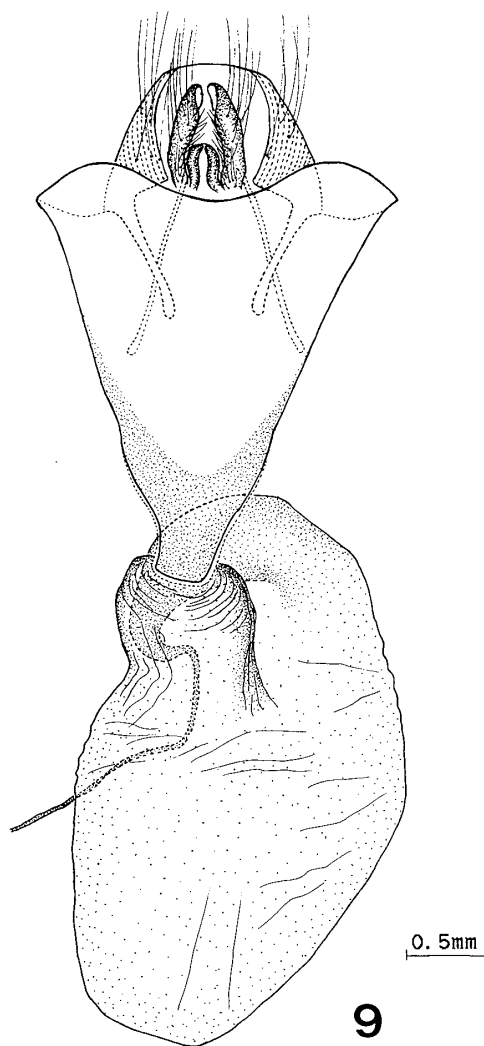


Fig. 9. Female genitalia of *Lygephila kishidai* sp. nov.

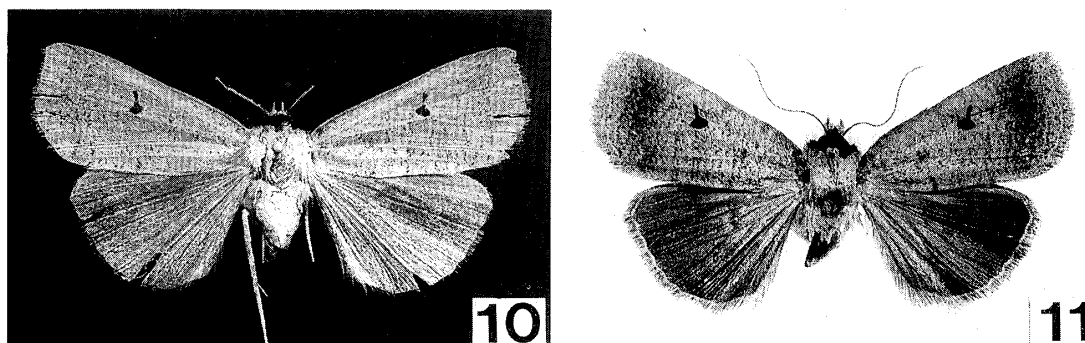
***Lygephila yoshimotoi* sp. nov.**

(Figs. 10 – 11, 12 – 16, 17, 19)

Palpi violet grey, the third segment in length one fifth of the second. Frons greyish brown with violet tint. Vertex velvet blackish brown. Antenna lustrous brown, filiform. Patagium blackish brown. Tegula grey with violet. Legs lustrous greyish brown. Abdomen lustrous greyish brown, underside paler.

Upperside of wings: Forewing greyish brown with eminent violet tint, suffused with conspicuous dark brown, especially at the area between submarginal and outer lines. Submarginal line traceable as thready, paler waves. Outer and inner lines indistinct. Orbicular stigma quite indistinct. Reniform stigma brownish black, of “gingko leaf” shape. Veins inconspicuous. Marginal line dirty yellow. Cilia greyish brown with violet tint.

Hindwing dirty greyish brown equally. Discal spot quite ambiguous. Outer line



Figs. 10–11. *Lygephila yoshimotoi* sp. nov. 10. Holotype, ♂; 11. Paratype, ♀.

indistinct. Cilia same as in forewing.

Underside: Forewing ochreous brown with blackish tint. Marginal and submarginal paler. Costa paler. Darker blackish brown from submarginal line towards basal. Outer line darker blackish brown. Discocellular marking inconspicuous.

Hindwing ochreous brown with blackish tint. Outer line darker blackish brown. Discal spot darker blackish brown.

Length of forewing: 17 mm.

Male genitalia (Figs. 12–16) Uncus in lateral aspect sickle shaped with pointed end. Valva: its apical portion bluntly peaked. Tip of harpe sclerotized, finger-like dully pointed at apex set adjacent to apex of valva. Small triangular swelling on middle dorsal position. Vesica of aedeagus slightly clothed with fine scobinations; manica delicately thorned. Juxta and transtilla as in Figs. 15–16.

Female genitalia (Figs. 17). Copulatory cavity of flat funnel form, tapering towards anterior portion, proximal half conspicuously sclerotized. Its posterior margin rather slightly bilobate.

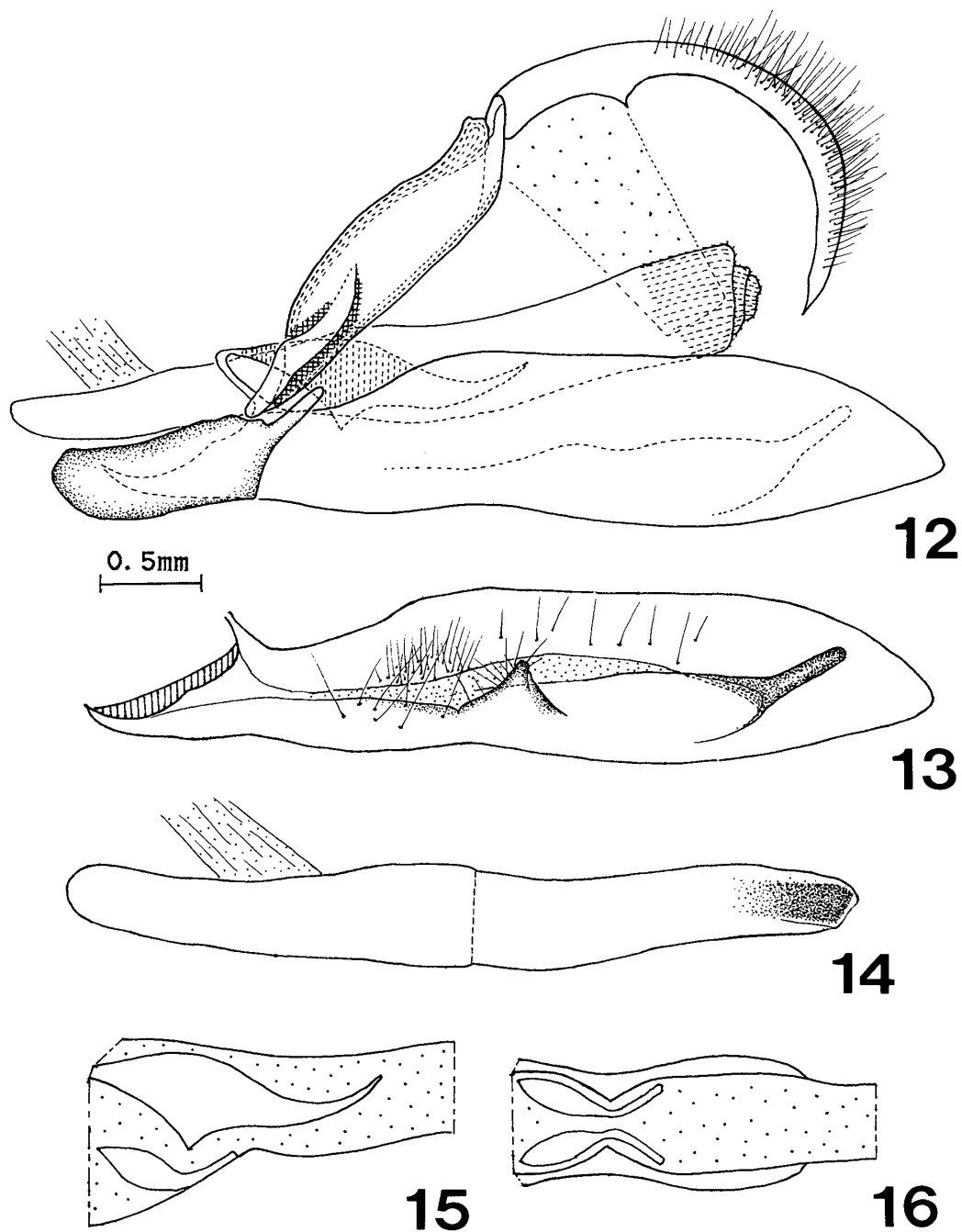
Holotype: ♂, Lushan Spa, (alt. 1200 m) Nantou Hsien, Taiwan, 23–24. III. 1981 (leg. H. YOSHIMOTO). Deposited in the collection of the Osaka Museum of Natural History, Osaka.

Paratypes: 3♀ in total. 1♀ Alishan, Chiai Hsien, Taiwan, 20. VI. 1970 (Y. KISHIDA) (in Coll. of the Osaka Museum of Natural History); 1♀, Tayuling, Hualien Hsien, Taiwan, 23–24. III. 1982 (H. YOSHIMOTO); 1♀ Tayuling (2600m). Hualien Hsien, Taiwan, 28–31. III. 1981 (H. YOSHIMOTO) (in Coll. of KINOSHITA).

Immature stages and food plant: Unknown.

Geographical distribution: Known at present time only from mountainous districts of Taiwan.

Remarks: *Lygephila yoshimotoi* is externally similar to *L. kishidai*. Both species can be, however, distinguished without difficulty by the shape of black spots in reniform stigma as shown in figures 18 and 19, when the materials are fresh. As to male genitalia, the shape of harpe, juxta, transtilla, and tegumen are trustworthy criteria to distinguish one from the other as shown in figures 3–8 (*L. kishidai*) and 12–16 (*L. yoshimotoi*). As to females, the shape of copulatory cavity and corpus bursae



Figs. 12–16. Male genitalia of *Lygephila yoshimotoi* sp. nov. 12. Uncus, tegumen, vinculum, valva and aedeagus (lateral aspect); 13. Right valva; 14. Aedeagus (lateral aspect); 15. Juxta and transtilla (lateral aspect); 16. *Ditto* (ventral aspect).

are good characteristics as shown in figures 9 (*L. kishidai*) and 17 (*L. yoshimotoi*).

The two species from Taiwan are also closely related with *Lygephila recta* BREMER, *L. subrecta* SUGI and *L. ogatai* KINOSHITA et SASAKI from Japan. But, there can be no confusion to determine them, because the two Taiwan species have the slender and sickle-shaped uncus with tapering end, whereas the three Japanese species have the broad beak-shaped or semicircular uncus.

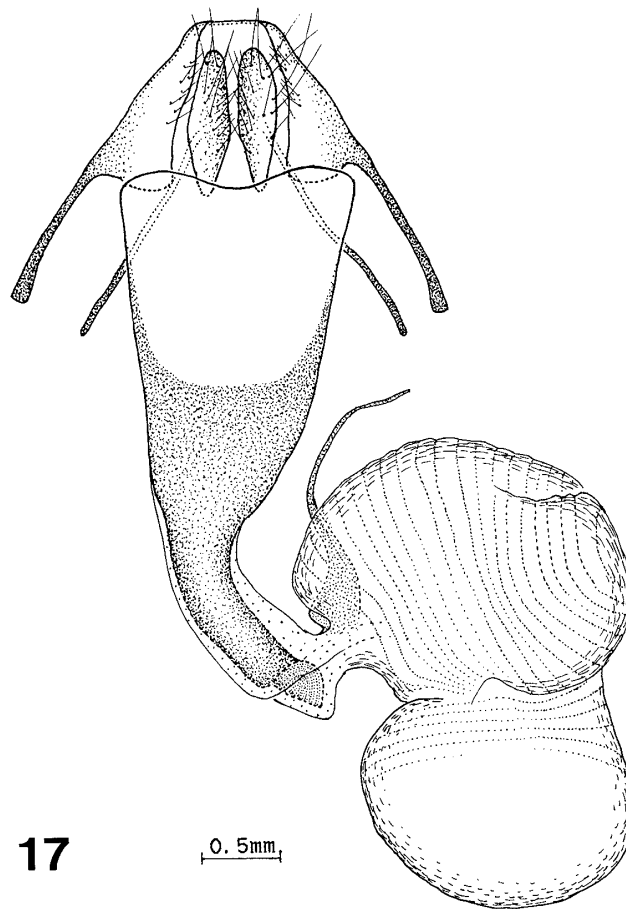
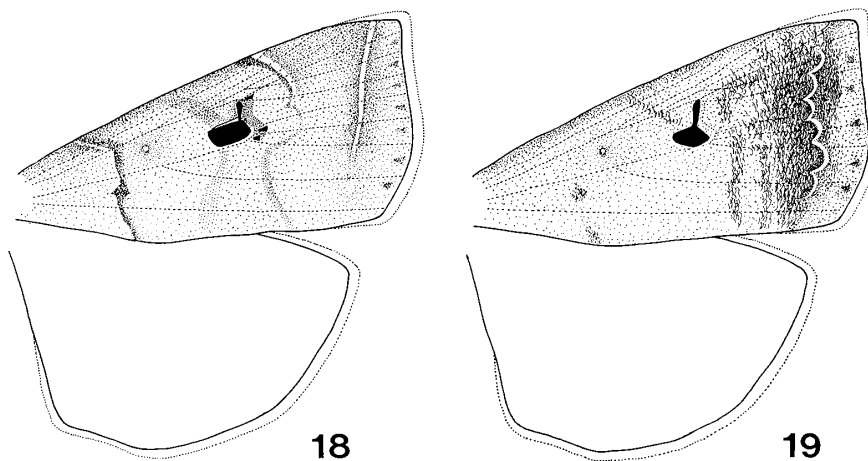


Fig. 17. Female genitalia of *Lygephila yoshimotoi* sp. nov.



Figs. 18–19. Right wings. 18. *Lygephila kishidai* sp. nov.; 19. *Lygephila yoshimotoi* sp. nov.

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### Reference

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- KISHIDA, Y. et H. YOSHIMOTO, 1988. on *Toxocampa lilacina* BUTLER, 1878, a senior synonym of *Lygephila ogatai* KINOSHITA & SASAKI, 1986 (Noctuidae). *The Japan Heterocerists' Journal*, No. 150: 395–396.

### 摘 要

#### 台湾産*Lygephila*属の2新種について (木下総一郎)

台湾に産する*Lygephila*属の2種がいずれも新種と判明したので、ここに記載する。これら2種は前翅の腎状紋の内方下端にある黒点の形だけで識別が可能である。しかし、飛び古した個体については、genitaliaを検鏡することが必要である。雄においてはharpe, juxta, transtillaおよびtegumenで容易に識別できる。雌においてはcopulatory cavityおよびcorpus bursaeの形状で容易に識別可能である。また日本に産する*L. recta*, *L. subrecta*および*L. ogatai*とは、uncusの形状がまったく違うので判別はきわめて容易である。現在この2新種の産地として知られているのは、台湾の山岳地のみであるが、将来南西諸島からの発見を期待して和名をつけておく。*Lygephila kishidai*をヒシガタクビグロクチバとし、*L. yoshimotoi*をイチョウクビグロクチバとしておく。